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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,846	04/03/2006	Gary Allan Froyland	9378/185 (BHP00PUS01007)	2470
757 7590 02/02/2010 BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			EXAMINER DICKERSON, TIPHANY B	
			ART UNIT 3623	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,846	Applicant(s) FROYLAND ET AL.	
	Examiner TIPHANY B. DICKERSON	Art Unit 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 and 64-78 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-62 and 64-78 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is a restriction requirement in response to the application filed on April 3, 2006. Claims 3, 6, 7, 8, 10, 13, 20, 24, 27-32, 34, 38-40, 47-48, 51-58, 61, 62, 67, 68, 70, 72, 74, 75, 77, 78 were amended by a preliminary amendment. Claims 63 and 79-81 were cancelled. Claims 1-62 and 64-78 are now pending.

Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
- I. Claims 1, 6-9 are drawn to a method of determining the removal of material(s) from a location, classified in class 705, subclass 7.
 - II. Claim 2 is drawn to a method of determining the removal of material(s) from a location, classified in class 705, subclass 8.
 - III. Claims 4 and 5 are drawn to a method of determining the removal of material(s) from a location for a mining operation, classified in class 299, subclass 19.
 - IV. Claims 10, 24 and 17 are drawn to a method and system of determining the removal of material(s) of differing relative value from a location, classified in class 705, subclass 7.
 - V. Claims 11, 13, and 18 are drawn to a method and system of reducing violations in the removal of material(s) in blocks) of a differing relative value from a location, classified in class 705, subclass 7.
 - VI. Claims 12 and 19 are drawn to a method and system of reducing violations in the removal of material(s) in blocks) of a differing relative value from a location, classified in class 705, subclass 7.

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- VII. Claims 14-16 and 21-23 are drawn to a method and system of determining a new cone position in the stack, classified in class 705, subclass 7.
- VIII. Claims 25-34 are drawn to a method and apparatus of determining the removal of material(s) from a location, classified in class 705, subclass 1.
- IX. Claim 35-48 are drawn to a method and apparatus of determining an aggregated block ordering for the extraction of material from a location, classified in class 705, subclass 9.
- X. Claims 49-62 are drawn to a method and apparatus of determining a mine design, classified in class 299, subclass 19.
- XI. Claims 64-78 are drawn to a method and apparatus of determining a schedule for extraction of clumps, classified in class 705, subclass 8.

The inventions are distinct, each from the other because of the following reasons:

- 3. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination II has separate utility such as determining a schedule with regard to impurity constraints. See MPEP § 806.05(d).
- 4. Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not

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obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination III has separate utility such as calculating a schedule, having regard to the expression: $(\text{Revenue}) R = \%(A. D. F) - \%(C. D. E) - \%(W. D. (E - F))$. See MPEP § 806.05(d).

5. Inventions I and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination IV has separate utility such as determining the approximate volume of material to be removed. See MPEP § 806.05(d).

6. Inventions I and V are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations. See MPEP § 806.05(d).

7. Inventions I and VI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to

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grade constraints; subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV. See MPEP § 806.05(d).

8. Inventions I and VII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination VII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

9. Inventions I and VIII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination VIII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

10. Inventions I and IX are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'. See MPEP § 806.05(d).

11. Inventions I and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not

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obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

12. Inventions I and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as determining a schedule with regard to grade constraints; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

13. Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to impurity constraints; subcombination III has separate utility such as calculating a schedule, having regard to the expression: $(\text{Revenue}) R = \%(A, D, F) - \%(C, D, E) - \%(W, D, (E - F))$. See MPEP § 806.05(d).

14. Inventions II and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to

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impurity constraints; subcombination IV has separate utility such as determining the approximate volume of material to be removed. See MPEP § 806.05(d).

15. Inventions II and V are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to impurity constraints; subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations. See MPEP § 806.05(d).

16. Inventions II and VI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to impurity constraints; subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV. See MPEP § 806.05(d).

17. Inventions II and VII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to impurity constraints; subcombination VII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

18. Inventions II and VIII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not

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obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to impurity constraints; subcombination VIII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

19. Inventions II and IX are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to impurity constraints; subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'. See MPEP § 806.05(d).

20. Inventions II and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to impurity constraints; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

21. Inventions II and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as determining a schedule with regard to impurity constraints; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

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22. Inventions III and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as calculating a schedule, having regard to the expression: (Revenue) $R = \%(A. D. F) - \%(C. D. E) - \%(W. D. (E - F))$; subcombination IV has separate utility such as determining the approximate volume of material to be removed. See MPEP § 806.05(d).

23. Inventions III and V are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as calculating a schedule, having regard to the expression: (Revenue) $R = \%(A. D. F) - \%(C. D. E) - \%(W. D. (E - F))$; subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations. See MPEP § 806.05(d).

24. Inventions III and VI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as calculating a schedule, having regard to the expression: (Revenue) $R = \%(A. D. F) - \%(C. D. E) - \%(W. D. (E - F))$; subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV. See MPEP § 806.05(d).

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25. Inventions III and VII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as calculating a schedule, having regard to the expression: (Revenue) $R = \%(A. D. F) - \%(C. D. E) - \%(W. D. (E - F))$; subcombination VII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

26. Inventions III and VIII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as calculating a schedule, having regard to the expression: (Revenue) $R = \%(A. D. F) - \%(C. D. E) - \%(W. D. (E - F))$; subcombination VIII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

27. Inventions III and IX are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as calculating a schedule, having regard to the expression: (Revenue) $R = \%(A. D. F) - \%(C. D. E) - \%(W. D. (E - F))$; subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'. See MPEP § 806.05(d).

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28. Inventions III and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as calculating a schedule, having regard to the expression: (Revenue) $R = \%(A, D, F) - \%(C, D, E) - \%(W, D, (E - F))$; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

29. Inventions III and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as calculating a schedule, having regard to the expression: (Revenue) $R = \%(A, D, F) - \%(C, D, E) - \%(W, D, (E - F))$; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

30. Inventions IV and V are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IV has separate utility such as determining the approximate volume of material to be removed; subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations. See MPEP § 806.05(d).

31. Inventions IV and VI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not

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obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IV has separate utility such as determining the approximate volume of material to be removed; subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV. See MPEP § 806.05(d).

32. Inventions IV and VII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IV has separate utility such as determining the approximate volume of material to be removed; subcombination VII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

33. Inventions IV and VIII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IV has separate utility such as determining the approximate volume of material to be removed; subcombination VIII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

34. Inventions IV and IX are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IV has separate utility such as determining the approximate volume of material to be removed; subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'. See MPEP § 806.05(d).

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35. Inventions IV and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IV has separate utility such as determining the approximate volume of material to be removed; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

36. Inventions IV and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IV has separate utility such as determining the approximate volume of material to be removed; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

37. Inventions V and VI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations; subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV. See MPEP § 806.05(d).

38. Inventions V and VII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the

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instant case, subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations; subcombination VII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

39. Inventions V and VIII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations; subcombination VIII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

40. Inventions V and IX are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations; subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'. See MPEP § 806.05(d).

41. Inventions V and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

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42. Inventions V and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination V has separate utility such as determining a new position of the cone with reference to reduced violations; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

43. Inventions VI and VII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV; subcombination VII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

44. Inventions VI and VIII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV; subcombination VIII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

45. Inventions VI and IX are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the

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instant case, subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV; subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'. See MPEP § 806.05(d).

46. Inventions VI and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

47. Inventions VI and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VI has separate utility such as determining a new position of the cone with reference to improved NPV; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

48. Inventions VII and VIII are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VII has separate utility such as selecting as the new cone position, the second cone position; subcombination VIII has separate utility such as selecting as the new cone position, the second cone position. See MPEP § 806.05(d).

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49. Inventions VII and IX are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VII has separate utility such as selecting as the new cone position, the second cone position; subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'. See MPEP § 806.05(d).

50. Inventions VII and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VII has separate utility such as selecting as the new cone position, the second cone position; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

51. Inventions VII and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VII has separate utility such as selecting as the new cone position, the second cone position; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

52. Inventions VIII and IX are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VIII has separate utility such as determining a schedule

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corresponding to the risk and return; subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'. See MPEP § 806.05(d).

53. Inventions VIII and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VIII has separate utility such as determining a schedule corresponding to the risk and return; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

54. Inventions VIII and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination VIII has separate utility such as determining a schedule corresponding to the risk and return; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

55. Inventions IX and X are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'; subcombination X has separate utility such as providing a sequence using an integer program. See MPEP § 806.05(d).

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56. Inventions IX and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IX has separate utility such as clustering blocks according to spatial coordinates x, y, and/or z and a further variable 'v'; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

57. Inventions X and XI are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination X has separate utility such as providing a sequence using an integer program; subcombination XI has separate utility such as assigning the period of time corresponding to at least a portion of the clumps. See MPEP § 806.05(d).

58. The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

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59. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to

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petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIPHANY B. DICKERSON whose telephone number is (571)270-7048. The examiner can normally be reached on M-F 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Boswell can be reached on (571)272-6737. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TIPHANY B. DICKERSON/
Examiner, Art Unit 3623
February 2, 2010

/Beth V. Boswell/
Supervisory Patent Examiner, Art Unit 3623